Cyperus Heermannii, n. s.—Culmis erectis 2—3-pedalibus, trigonis; umbella 11—13 radiata; radiis inæqualibus 2-interioribus sessilibus; longioribus subæqualibus 7—8-policaribus; involucro 9—13-phyllo; phyllis inæqualibus, longioribus 9—12-policaribus; radiis 15—17-stachyis, basi confertis apice divergentibus 15—25-floris; squamis ovatis acutis lateralibus rufescentibus margine albescentibus; carinis viridiscentibus; involucelli phyllis numerosis linearibus, vel setaceis; longioribus 1—2-policaribus; achenio obtuso ellipsoideo et obtuso trigono stylo profunde trifido.

California. Dr. Heermann.

Spikelets densely aggregated in nearly the same plane, with numerous linear or setaceous leaves interspersed. Often the heads of spikes are proliferous, with a ray about an inch in length, crowned with spikelets.

Chætocyperus (Elæocharis) membranaceus, n. s.—Culmis filiformibus erectis, cæspitosis, 2—3-policaribus planis; spica oblongo-ovata 4—12-squamata, acuta imbricata; squamis ovatis, acutis vel subobtusi lateralibus dense albo-hyalinis dorsis stramineis; achenio lato-ovoideo nigro, subacute triangulari et abrupte in tuberculum angustum erosum rostrato; setis nullis.

Llano County. Grows in small tufts.

Spikes greyish white 3—4 lines long, achenia quite as broad as long, dull black, not shining. A few of the scales are tinged on the back with brownish red, but most of the backs are straw colored and not keeled; the back of the lower scale is green.

Eleocharis cylindrica, n. s.—Culmis planiusculis filiformibus 9—12-policaribus; spica cylindrica subacuta 4—7 lin. longa; squamis ovatis vel ovato-lanceolatis acutis inferioribus obtusis rufescentibus; margine albo-hyalinis carinis stramineis; achenio parvo ovoideo obtuse triangulari glabro tuberculo magno subconico apiculato; setis 3—6 caducis nucula brevioribus.

Northern Texas. June.

Spikes 1—2 lines in diameter. Stems below immersed in water. Nuts pale yellow, small; tubercle large in proportion, contracted at the base and shortly apiculated.

Eleocharis microformis, n. s.—Culmis setaceis cæspitosis erectis 1—2-policaribus, planiusculis; spicis ovatis obtusis vel subacutis 10—12-squamatis; squamis ovatis acutis vel subobtusis, rufescentibus; carinis viridescentibus; achenio glabro nitido lato obovato pyriformi; setis 6 nuculam æquantibus; tuberculo lato applanato breve apiculato.

Northern Texas. June.

Mature achenia black and shining, crowned with a broad white tubercle, with a short point in the centre. Scales reddish brown, with green keels.

Eleocharis acutisquamata, n. s.—Culmis striato-sulcatis erectis filiformibus 10—15-policaribus; spica oblongo-ovata acuta 15—40-squamata; squamis ovato-lanceolatis, acutis rufescentibus apice membranaceis; achenio obovato pyriformi et minute reticulato; tuberculo breve conico apiculato; setis nullis; spica 4 lin. longa.

San Saba County. May and June.

Rhizoma large and creeping; achenia pale yellow, biconvex tubercles brown.

On the Uniformity of Relative Characters between Allied Species of European and American Trees.

BY THOMAS MEEHAN.

To whatever principles the origin of species may be owing, the following observations tend to show that their respective differences are the result of one unvarying law.

Noticing that European willows, oaks and other trees retained their green

leaves in the autumn much longer than closely allied American species growing near them, and that this could not be owing to immediate climatic influences, as *Gleditschia triacanthos*, *Robinia pseudacacia*, and other American trees, with no European representatives, possessed the same characters, I was led to believe it was rather the result of inherent specific peculiarities, which further investigation tended to confirm.

It will be seen from the subjoined table that on any positive difference being ascertained to exist between an American and a closely allied European species, the relative differences between all other closely allied species of the same differing geographical distribution are of the same character and nature.

For instance, the European Plane (*Platanus orientalis*) may be distinguished by a compactness of growth when compared with the diffuse habit of the American species, and the same compactness and diffuseness will be found to prevail in all the respective European and American species of other genera.

The nut of the European chestnut (*Castanea vesca*) is characterized by large size; the American (*C. Americana*) is much smaller, and the seeds of all allied European and American species bear the same relative proportions; and so of other characters that I have compared, and which I may enumerate as follows:—

1st. *Color and persistency of the leaves.*—In which the American species change to some brilliant hue, and fall comparatively early, while the European co-species fade black, and are retained to a later period of the season.

2d. *Outline of the leaves.*—In which the American species have the leaves less lobed, less deeply toothed or serrated, less in width in proportion to their length, and less petiolate than the European species.

3d. *Size of the seeds.*—In which the American are smaller than the European.

4th. *Habit of growth.*—In which the American is more diffuse, has much fewer branchlets, and more and more vigorous main branches, and the outline more irregular and informal than European trees.

5th. *Size of the buds.*—In which the American have smaller ones than the European, and usually set at wider spaces between the nodes.

The observations finally made were taken at Germantown, Pa., during the first week in November, 1861.

European Species.	*American species.*
Larix Europæa.	Larix Americana.
Quercus robur.	Quercus alba.
" cerris.	" macrocarpa.
Betula alba.	Betula populifolia.
Populus tremula.	Populus grandidentata.
" dilatata.	" Caroliniana.
Morus alba.	Morus rubra.
Euonymus Europæus.	Euonymus atropurpureus.
Spiræa salicifolia.	Spiræa carpinifolia.
Berberis vulgaris.	Berberis Canadensis.
Carpinus betulus.	Carpinus Americanus.
Cornus sanguinea.	Cornus sericea.
Ulmus campestris.	Ulmus Americana.
Corylus avellana.	Corylus Americana.
Alnus glutinosa.	Alnus serrulata.
Castanea vesca.	Castanea Americana.
Pyrus malus.	Pyrus coronaria.
Tilia Europæa.	Tilia Americana.
Ulmus montana.	Ulmus fulva.
Fraxinus excelsior.	Fraxinus acuminata.
Cerasus padus.	Cerasus Virginiana.
" mahaleb.	" serotina.
Fagus sylvatica.	Fagus ferruginea.

European species.	*American species.*
Cercis siliquastrium.	Cercis Canadensis.
Celtis australis.	Celtis occidentalis.
Platanus orientalis.	Platanus occidentalis.
Acer platanoides.	Acer saccharinum.
Juglans regia.	Juglans nigra.
Cratægus oxyacantha.	Cratægus cordata.

In the *first* of the points to which attention has been directed, the only exception appears to be in *Larix Europœa*, which drops its leaves at near the same time as the American, and, unlike all the other species named, exhibits in fading the same tinted leaves.

In *point* 2. *Fagus ferruginea* has a more strongly toothed margin than the European *F. sylvatica;* but it is also worthy of note that the leaves of the English species are more coriacious than the American, which may have checked the prolongation of the nerves forming the teeth in the latter species. If there is any difference in the consistency of the leaves, it is usually in favor of the American species.

In 3. *Quercus cerris* has smaller acorns than *C. macrocarpa*, but it is the most distantly allied species brought into comparison.

In 4. I know of no exceptions.

In 5. In some few instances the buds of European species appear to be no larger than the American, and in still fewer instances seem smaller; but the rule holds good so generally as to form a striking and prevailing character.

It is proper to remark that the observations were taken from allied species that I have been able to find growing in proximity to each other, and in as similar circumstances as possible. This is very important, as, to a limited extent, circumstances have an influence in the variation of characters. For instance, *Quercus alba*, when growing in the full light and unsurrounded by other trees, has its leaves much more deeply sinuated than when growing in a mass with others. Lack of attention to this fact would make standard botanical works in some instances seem to oppose the conclusions I have arrived at. As an example of this, Michaux figures *Fagus ferruginea* with larger fruit than *F. sylvatica*, and the leaves of *Juglans regia* as less serrulate than those of *J. nigra*, neither of which agrees with my experience of plants grown near each other in this climate, and is probably, if not altogether, an error in drawing, to be accounted for by the supposition that the sketches were made from specimens growing under widely diverging circumstances.

The species employed in the comparisons are not in all cases the nearest that might be had. *Pyrus baccata*, for instance, would be a better match for *P. coronaria* than *P. malus*, but they were the best my facilities afforded me. Some allied trees could not be compared in all points, and were therefore left from the list. *Æsculus*, for instance, had shed its leaves at the date given,—too early for comparison in persistency of foliage; but in points 2, 3, 4 and 5 the differences between *Æ. hippocastanum*, on the European, and *Æ. flava*, on the American side, agree with other species of the other genera named.

The observations are perhaps too limited, in the absence of more extensive examinations of other characters and other plants, to *establish the fact* that, whatever may be the principle governing the origin of species,—whether it be by "progressive development," "natural selection of physiological advantages," or by "special and continuous acts of creation,"—it is in conformity with one regular and uniform law; but their tendency is so evidently in that direction, that I submit the facts for more general investigation, in the belief that it will prove a novel and interesting branch of study in Botanical Science.

[Jan.